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CASE REPORT

Breast carcinoma in an pectoralis major myocutaneus flap used for reconstruction of the oral cavity: A case report and review of the literature

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Summary The pectoralis major flap is an often used versatile myocutaneus flap for the immediate reconstruction of wide defects resulting after resection of malignant tumors of the head and neck. The development of an adenocarcinoma in accidentally displaced breast tissue of the pectoralis major flap is described. The lesion was not palpable and was detected by ultrasonic examination. This case places emphasis on the regular examination including ultrasonic examination after resection and reconstruction of malignant tumors of the head and neck.

Background

The pectoralis major myocutaneus flap is an often used adequate method for the immediate reconstruction of wide defects resulting after resection of malignant tumors of the head and neck.[7]

Since the first description by Ariyan[1] in the 1970s, the pectoralis major myocutaneous flap has been the most commonly used. The main reasons for this are the simple technical aspects, versatility, and proximity to the head and neck region.[11–13,16]

However, a few specific disadvantages have to be noted: the typically thickness of the myocutaneus flap, the functional and cosmetic donor defects particularly concerning the female chest and the possibility of hiding the recurrence of the malignant tumor.[4,10] Only a few case reports give an

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account of the metastatic spread along the flap.[2,3,15] This report describes the first case of a breast carcinoma in an pectoralis major myocutaneus flap used for reconstruction of the oral cavity.

Case report

The patient was a 71-years-old female with no history of serious diseases, alcohol or nicotin when in February 1994 the initial diagnosis of a squamous cell carcinoma of the right alveolar process of the mandible (pT4, pN0, pMX, G2) was made. She underwent surgery (partial resection of the mandible, the buccal mucosa and part of the floor of the mouth, right radical neck dissection, immediate reconstruction of the mandible with a reconstruction plate and intraoral reconstruction with a local flap) and irradiation post surgery (60 Gy).

In August 1995, the first local recurrent squamous carcinoma emerged and was treated with local resection and reconstruction. In April 1997, the second recurrent squamous carcinoma arised at the right margin of the tongue. The patient underwent resection of the right half of the tongue and the buccal mucosa and a pectoralis major myocutaneus flap was used for reconstruction of the oral cavity.

In February 1999, a second squamous cell carcinoma of the of the right alveolar process of the upper jaw (pT1, pNX, pMX, G2) was diagnosed. The patient underwent partial resection of the maxilla and the resulting defect was covered with a temporary prosthesis.

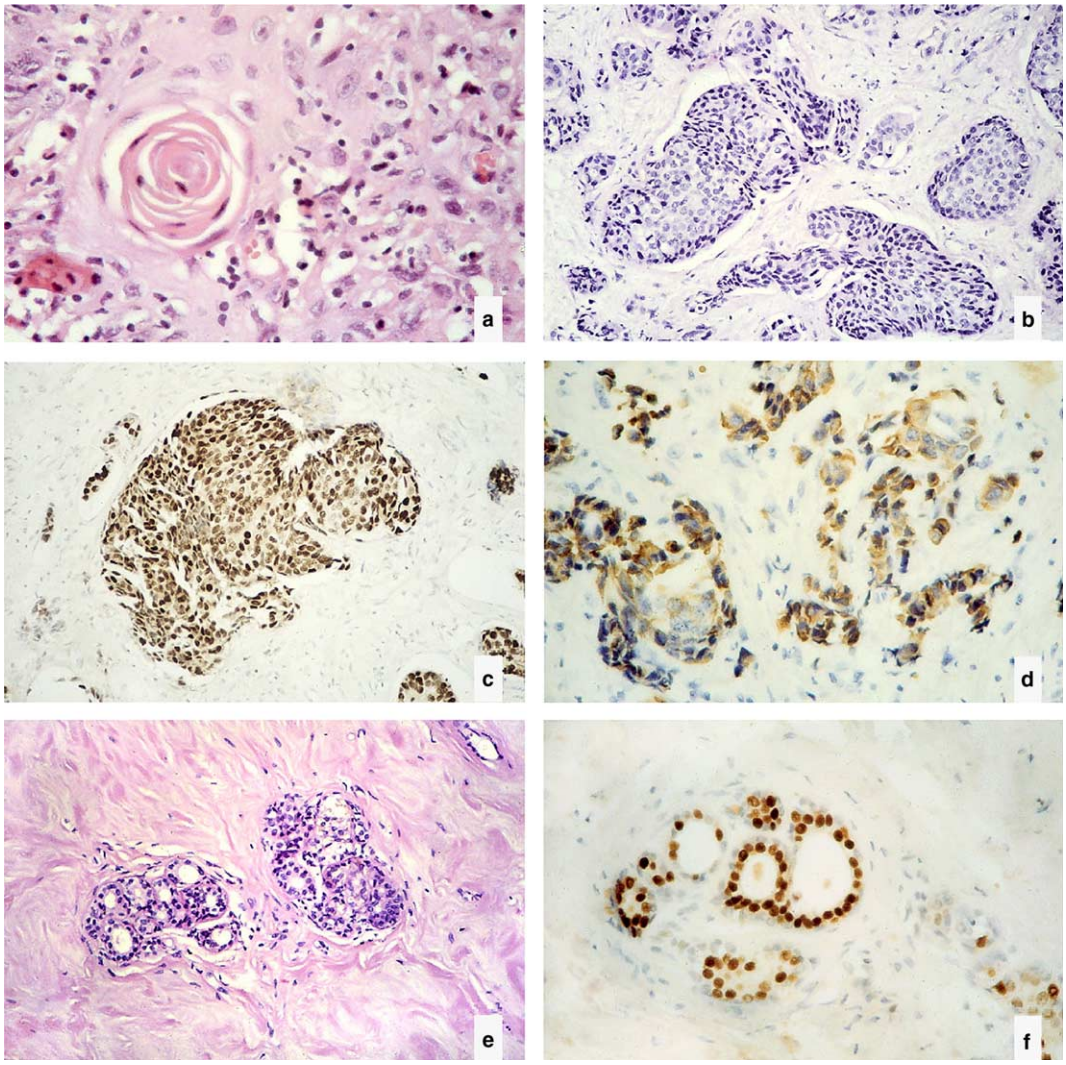

Figure 1 (a) Squamous cell carcinoma of the right alveolar process of the mandibula (HE, x500). (b) Breast carcinoma in the pectoralis major myocutaneus flap (HE, x400). (c and d) Breast carcinoma: immunoreactive for cytokeratine 7 (c) and oestrogen (d). (e and f) Regular mammary gland in the pectoralis major flap, (e) with oestrogen expression (f).

In October 2001, ultrasonic control examination detected a suspect non-palpable inhomogeneous lump ($14 \times 13 \times 20$ mm) located in the dorsal segment of the pectoralis major myocutaneus flap. The tissue sample revealed an adenocarcinoma. Eradicative resection and local reconstruction were performed.

The histological examination, positive staining for estrogen receptor (>80%), progesterone receptor (<10%), HER−2 (>10%) confirmed the appearance of an adenocarcinoma in mammary tissue of the pectoralis major myocutaneus flap (Fig. 1). Further investigation revealed no breast cancer. Following therapy with tamoxifen 20 mg/d from October 2001 to June 2002 was administered in our department of gynaecology and obstetrics.

The last examination in March 2005 provided no evidence of recurrent squamous cell carcinoma in the oral cavity or recurrent adenocarcinoma in the pectoralis major myocutaneus flap or breast cancer.

Discussion

Pectoralis major and other myofascial/myocutaneous flaps have been recognised as important reconstructive methods in head and neck cancer surgery. Even with the worldwide use of free flaps, they are still the mainstay reconstructive procedures in many cases[18]. The main advantages are the ease of its technical aspects, the proximity of the head and neck region, and the possibility of obtaining a large amount of well vascularized tissue for the reconstruction of wide defects resulting after resection of malignant tumors of the head and neck in an one-stage procedure.[11–13,16,19] The reported disadvantages of the pectoralis major flap concern the typically thickness of the myocutaneus flap, the functional and cosmetic donor defects, the possibility of hiding recurrence of the malignant tumor and the poor vascular supply to the distal skin paddle which can cause partial dehiscence, fistulation and infection resulting in a prolonged hospital stay.[4,10,18,19]

Metastatic spread along the myocutaneous flap is a rare complication in head and neck surgery. In 1984 Robbins and Woodson, in 1988 Badellino et al. and in 2004 Bansal et al. published the occurrence of metastases to the donor site of the pectoralis major myocutaneous flap. Their explanation was the lymphatic or hematogeneous tumor spread along the vascular pathways of the transposed myocutaneous flap.[2,3,15]

Another uncommon complication of ablative cancer surgery and reconstruction is the autotransplantation or implantation of cancer cells. In 1985, Carr and Gilbert reported tumor implantation to a temporalis muscle flap donor site.[5]

In breast cancer surgery, the transverse rectus abdominis myocutaneous flap is a common used postmastectomy reconstruction method. Recurring carcinoma within the flap is rare but known phenomena.[6,8,9,14,17] The authors hypothesized that lymphatic channels from the native skin traversed the flap and flowed toward the axilla. Therefore, residual carcinoma in native skin could spread to the transverse rectus abdominis myocutaneous flap via these new lymphatics. Residual breast tissue with development of carcinoma, tumor seeding at the time of surgery, persistence of tumor in the operative field and lymphatics are other possible sources of recurrence.[6]

In our case, the carcinoma in the pectoralis major myocutaneus flap was not a squamous cell carcinoma but an adenocarcinoma. Therefore, not surgical seeding or lymphatic or hematogeneous spread of the oral cancer were supposed to be responsible for the occurrance of the tumor in the myocutaneous flap. We hypothesize that the adenomatous carcinoma arised in accidentally displaced mammary gland tissue of the pectoralis major flap. This assumption is supported by the histological findings.

According to anti-estrogen therapy, the patient did not present any recurrent adenocarcinoma until now.

Reconstruction of wide defects resulting after resection of malignant tumors with pectoralis major and other myofascial/myocutaneous flaps is a widely used surgical technique. To prevent recurring or even new occuring carcinoma within the flap, regularly examination including ultrasonic examination is recommended.

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